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Simulation of SU(2) gauge theory with improved domain-wall fermions

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In this work, we study SU(2) gauge theory with many flavors using the improved domain-wall fermions, which is realized by the stout-HYP link smearing and the optimal domain-wall formulation.

In contrast to the standard domain-wall fermions used in the previous studies, it enables us to investigate the small fermion mass region due to the much suppressed residual mass.

With the improved domain-wall fermions, the spectrum and the residual mass are examined on previously generated configurations as well as in dynamical simulations.

We also discuss the extension to simulations of the epsilon-regime.

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